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GROWTH AND MANAGEMENT OF AMERICAN AGRICULTURE

We are passing through an era of rapid change in our manufacturing and commercial industries and are witnessing the building up of huge industrial combinations. Our whole industrial world is rapidly assuming changed form and proportion. As agriculture is our basic industry, careful note should be made of the changes that are taking place in this great field of human industry.

We are still an agricultural nation. The total value of farm property in the United States, according to the twelfth census,¹ is \$20,514,001,838; an increase of 28.4 per cent over the total value reported in 1890. There are 5,739,657 farms in this country, having an average size of 146.6 acres each.

What are the tendencies disclosed by the census of 1900, in the different sections of our country with regard to farm products, methods employed, use of fertilizer, size of farms, ownership or tenancy? What is the progress of the negro farmer? We shall, in the following pages, attempt to organize and systematize the facts as given us by the last census, and to draw whatever conclusions this study may seem to warrant.

For purposes of comparison the United States has been divided into eight groups. The states composing these groups show similar tendencies; and, to some extent, each group has its own marked features and peculiarities. The classification chosen is not the same as that used by the Census Bureau, but is the one which seems best adapted to our present purpose. These groups are as follows: Group I, New England States: Maine, New Hampshire, Vermont, Rhode Island, Massachusetts and Connecticut. Group II, North Atlantic States, not including New England: New York, Pennsylvania, New Jersey, Delaware and Maryland. Group III, North Central States: Ohio, Michigan, Indiana, Illinois and Wisconsin. Group IV, Mississippi Valley States: North and South Dakota, Iowa, Minnesota, Kansas, Nebraska, Missouri and Oklahoma. Group V, Southern States, not including the Cotton Belt: North Carolina, Virginia, West Virginia, Kentucky, Tennessee and Arkansas. Group VI, the Cotton Belt: South Carolina, Georgia, Florida, Alabama, Mississippi and Louisiana. Group VII, Rocky Mountain States and Texas: Montana, Utah, Wyoming, Colorado, Nevada, Arizona, New Mexico and Texas. Group VIII, Pacific Coast: California, Oregon, Washington and Idaho.

Characteristic features of Each Group.—Groups I and VII represent the two extremes of agriculture in the United States,—dairying, market gardening and raising of small fruits on the one hand, and grazing on the other.

The most striking feature of the New England group is the marked

¹ The statistics given herein are taken from the Bulletin of the Twelfth Census.

decrease in the acreage of improved farm land during the last twenty years, and particularly during the last ten years. We find a gradual decrease in the total amount of the cereals raised during the last fifty years. For example, Massachusetts in 1859 raised 119,783 bushels of wheat; in 1899 only 1,750 bushels were raised. In 1849, 2,345,490 bushels of corn were raised in that state; in 1899, 1,539,980 bushels. A corresponding increase in dairy farming, market gardening and horticulture is found. In 1900, the principal source of income of 45.8 per cent of the total farm acreage in Massachusetts, was dairy farming; in Maine, 28.4 per cent. The raising of hay, forage, and the cereals is chiefly incidental to the dairy farming and live stock industries. The amount of milk produced in these states shows a great increase; but the amount of butter and cheese produced on the farms has, in general, decreased. There has been a transfer of these industries to the factories and creameries. The growth of the cities has greatly increased the demand for milk and cream.

We find that Western competition has gradually forced the farmers of this section to abandon the raising of cereals and of live stock for slaughter; and has caused them to devote their energies to the production of such products as milk, small fruits, vegetables and poultry for the consumption of the town and city population of New England. Census Bulletin, No. 104, gives an instructive comparison regarding the income derived from animal products in Arizona and Connecticut. In Connecticut, in 1899, of the total value of animal products, 60.9 per cent was dairy produce; 17.3 per cent animals sold and slaughtered; 21.5 per cent poultry and eggs.

In Arizona, the percentages were respectively 12 per cent, 70.9 per cent and 6.1 per cent.

From 1870 to 1890, there was a steady decrease in the value of land, improvements and buildings. From 1890 to 1900, however, a slight increase was found. Maine is an exception to the last statement, and it is worthy of notice that the northern portion of this state is still largely devoted to general agriculture.

Group II seems to be progressing toward dairy farming and market gardening, but it is not as far advanced as the New England States. New Jersey, owing to its proximity to New York City, has developed market gardening to a considerable degree. Vegetables are the principal source of income of 14 per cent of the farm acreage of this state. Maryland devotes a considerable portion of her farm land to market gardening. The value of farm land, improvements and buildings in Pennsylvania, New York and Delaware has declined each decade since 1870; while that of Maryland has increased since 1880, and that of New Jersey since 1890. This certainly seems to point toward dairying and market gardening as the future industries for the farmers of these five states. There has, however, been an increase in the acreage devoted to corn and wheat since 1889. We find a fairly constant decrease since 1850 in the number of sheep, and an increase in the number of dairy cows and horses. These states show a slight decrease in the percentage of improved land. The greatest decrease, 5.7 per cent, is found in New York.

Live stock, hay and grain form the principal source of income of a large percentage of farm acreage of Group III. In Wisconsin, dairy farming is an important industry. Michigan contributes 36.5 per cent of the total acreage devoted to the raising of sugar beets. The value of farm land, improvements and buildings has increased rapidly, during the last decade, in Illinois and Wisconsin, slowly in Indiana and Michigan, and has slightly decreased in Ohio.

The acreage devoted to corn shows a considerable increase in each, ranging from 20 per cent in Ohio to 50.9 per cent in Michigan. Illinois devoted in 1899, 10,266,335 acres to the cultivation of corn, from which 398,149,140 bushels were obtained. This is an increase of 108,000,000 bushels over the crop of 1889, and 73,000,000 bushels more than obtained in 1879. The number of bushels of wheat produced in each state of this section has decreased steadily since 1879, with the exception of Ohio, in which state an increase is shown since 1889.

The number of dairy cows reported is less than in 1889 in Ohio, Indiana and Illinois. Wisconsin and Michigan show an increase. The increase in the production of milk varies from 24.5 per cent in Illinois to 55.5 per cent in Wisconsin. The percentage of improved land is about the same as in 1890. Wisconsin only shows a decrease.

This group of states shows no very decided changes during the past decade. The total value of farm property has increased rapidly during this period, except in Ohio, where the increase is very slight. It is not likely that these states are to be driven from the extensive production of the cereals.

Group IV is developing very rapidly, the value of farms and farm products is increasing at a rapid pace. During the last decade, the value of farm land, improvements and building has increased 97 per cent in Minnesota, 163.9 per cent in North Dakota, 104.8 per cent in South Dakota, 75 per cent in Iowa, 43.6 per cent in Nebraska, 15 per cent in Kansas, 34.9 per cent in Missouri, and about fourteen times in Oklahoma. During the same period, the gain in the United States was 25.6 per cent.

The amount of corn and wheat produced is increasing in every state. Minnesota and North Dakota show a large increase in the amount of wheat. In 1889, Minnesota produced 52,300,247 bushels of wheat, and North Dakota 26,403,365 bushels; in 1899, 95,278,660 and 59,888,817 respectively. Iowa raised 383,453,190 bushels of corn in 1899, an increase of 70,000,000 bushels over that raised in 1889.

The live stock industry has experienced a steady growth during the past forty years. In Iowa and Missouri the increase during the last ten years is very slight, and we shall not expect any great increase in the near future in these two states.

All the states in Group V show a steady increase in the total value of farm property, and land, improvements and buildings; but the percentage is not as great as that of the entire United States. Live stock, hay and grain are very important products in these states. Cotton is an important crop in North Carolina and Arkansas; tobacco in Virginia and Kentucky. The

number of horses and mules reported show a marked increase since 1870. This section of the country is devoted to general farming. Conditions seem to be gradually, but surely, improving.

Florida is grouped with the cotton producing states, although it is not as distinctively a cotton growing state as are the other five states. In Alabama 54 per cent of the farm acreage of the state produces cotton as its principal crop; in Georgia, 62.5 per cent; in Louisiana, 51.7 per cent; in Mississippi, 58.8 per cent; in South Carolina, 65.4 per cent, and in Florida, 19.2 per cent.

With the exception of Florida, which shows a decrease since 1890, these states show a steady and rapid increase in the total value of farm property, and in the value of land, improvements and buildings. This period extends from 1870 to the present time. For example, in Louisiana, during the period of 1890-1900, the total value of farm property increased \$88,089,901, or 79.8 per cent. The increase in the United States during that period was 28.4 per cent.

In Group VII we find the live stock industry predominant. This is the great grazing region. Live stock is the principal source of income for 80.6 per cent of the total acreage of Montana; 60.1 per cent of Utah; 90.1 per cent of Wyoming; 64.4 per cent of Colorado; 81.3 per cent of Nevada; 83 per cent of Arizona; 84.9 per cent of New Mexico, and 71.7 per cent of Texas.

The number of "other neat animals" reported in 1900 shows an increase over 1890 in each state of this group except Wyoming. The number of sheep raised has also increased in each state except Texas, which shows a decrease from 3,454,858, in 1890, to 1,439,940, in 1900. Wyoming reports 3,327,185 sheep in 1900, an increase of about four times over that of 1890; Colorado, 1,352,823, or double that of 1890; New Mexico, 3,333,743, about two and a half times the number reported in 1890; Utah, 2,553,134, double that of 1890; Montana, 4,215,214, also double that reported in 1890. These five states and Texas report 16,222,039 sheep in 1900, or about 41 per cent of the total number reported in the United States. As the total number of sheep reported in the United States only shows an increase of 11.1 per cent in the period 1890-1900, we see what an enormous transfer of the sheep-raising industry has taken place. Nearly all of the Eastern States show a marked decline in this industry. Texas reports 8,567,173 "other neat animals," or about one-sixth of the total number reported in the United States. Colorado reports 1,333,202.

The percentage of improved land in this section is, of course, small, ranging from 25.1 per cent in Utah, to 6.4 per cent in New Mexico. The acreage of unimproved land has increased enormously during the last ten years; and, while the amount of improved land has increased, the percentage shows a large decrease.

In Group VIII, the value of all kinds of farm property has increased very rapidly during the last ten years, except in the State of California. The character of the products of this group is similar to that of Group IV. Washington and Idaho show large increases in the amount of wheat produced. Washington reported 21,187,527 bushels of wheat in 1899; 6,345,426, in 1889. California reports 37.4 per cent of the entire acreage of sugar

beets. With regard to the number of sheep, the same tendency is observed as in Group VII; the northern states, Washington and Idaho, show a large increase, while California reports a considerable decrease.

The Number and Size of Farms.—One hundred, or even fifty years ago, the farm was almost a self-contained unit. It consumed little except what it produced. The farmer made his own clothes, shoes, cheese, butter and candles; he was his own carpenter, blacksmith and wheelwright. These industries have been appropriated, with the exception in some cases of butter making, by the factories. The farmer is relieved from almost all kinds of transforming work. The effect of all this is to make him more dependent. He must buy more and sell more. He must co-operate with many other workers of different trades and occupations. Farming is now a strictly competitive business, in a market which is nearly world-wide. How is this change to effect the size and management of our farms? Is the tendency toward combination and consolidation, as in manufacturing and commercial industries? Are we to have a few owners, and a great class of tenants or of hired farm laborers; or a large number of small owners with few hired helpers?

While the census returns will not give us any definite answer to these questions, a study of the different sections of the United States may throw some light on the problem. Farming is subject to the law of diminishing returns. The limit to the amount of capital which may be profitably utilized on a given space of ground is soon reached. This limit is a variable depending upon many different factors; for example, the quality of the land, the presence or absence of new land, and the methods of transportation. Farming does not, in its present state, admit of an extreme division of labor. The exact time of beginning and quitting work cannot be regulated as in manufacturing. The quantity of work to be done varies greatly with the seasons. This is not true of dairying; but the inability to obtain help at the proper time has, in some instances, prevented extreme specialization of crops. This furnishes one of the difficult problems of our great wheat-growing sections. Farming, to a high degree, requires that personal attention and care which is ordinarily not given by the wage-earner; but is only given by those who receive a share in the profits of the farm. All these conditions show farming to be a peculiar industry; tendencies in agriculture and tendencies in manufacturing are not likely to follow parallel lines of development.

The number of farms in the United States has increased steadily since 1850. The total acreage has also increased throughout the same period. The average size of each farm decreased up to 1880; but has increased since that date.

In New England, the greatest number of farms was reported in 1880. Each state reached a maximum at this time. Since 1890, the number has increased in Vermont, Massachusetts, Connecticut and New Hampshire. Rhode Island reports two less in 1900 than 1890; and Maine shows a decrease of 2,714 or 4.4 per cent of those reported in 1890. The average size of the farms, located in this section in 1890, was 101.9 acres; in 1900, 104.1 acres. But Massachusetts and Rhode Island show a decrease; while in

Connecticut the average size remains as in 1890. It is in these three states that market gardening and the raising of small fruit has been the most highly developed.

In Group II, with the exception of New York, each state reports more farms and of a smaller average size than in any previous decade. In New York, the greatest number was reported in 1880. The number in 1900 is, however, greater than in 1890. The average size of farms in New York decreased steadily until 1890; but the last decade shows an increase. The average size of the farms in this section was 98.1 acres in 1900, and 100.9 in 1890.

Each state in Group III reports a steady increase in the number of farms, from 1850 to 1900. The percentage of improved land has changed but slightly during the last decade. The average size of farms was, in 1900, 102.7 acres; in 1890, 104.6 acres. Michigan and Wisconsin show an increase in the average size during the last decade.

All states in Group IV, except Missouri, show an increase in the average size of farms. The exception in this case is due probably to an increase in the number of negro farmers. In 1890, the average size was 187 acres; in 1900, 235.5 acres.

Groups V and VI show very decided tendencies. In each state of these two groups, the number of farms has increased remarkably during the last thirty years. The size of the farm has decreased with corresponding rapidity; and the percentage of improved land shows an increase. In Louisiana, the number of farms has increased from 69,294, in 1890, to 115,969 in 1900; while the average size has decreased from 137.7 acres to 95.4 acres. In Virginia, the number increased from 127,600 to 167,886 during the same period, and the average size decreased from 149.7 acres to 118.6 acres. Florida shows the least change in these two items. The average size of farms in Group V was 100.3 acres in 1900, and 128.8 in 1890; in Group VI, 97.5 acres in 1900, and 125.9 acres in 1890.

However, it is to be noted that in Group VI, for example, the average size of farms owned by white farmers is 139.1 acres; of those owned by negro farmers, 50 acres. This will be again considered under a following head.

The increase in the size of farms, in Group VII, is extremely large during the last decade. The average size in 1890 was 493.9 acres; in 1900 it was 653.9. In Wyoming, the increase was from 585.7 acres to 1,333 acres. This state now has the largest average acreage per farm. The five states in this section, which show a large increase in the number of sheep reported, also show a very high percentage of increase in the size of farms. This is also true of Texas.

In Group VIII, California and Oregon show a decrease in the average size of each farm; Washington and Idaho report an increase for the last decade.

The average size of a farm in the United States was, in 1850, 202.6 acres; in 1860, 199.2; in 1870, 153.2; in 1880, 133.7; in 1890, 136.5, and in 1900, 146.6. During the last decade the increase was 10.1 acres.

The increase or decrease for each group during the last ten years was:²

		Increase, Acres.	Decrease, Acres.
Group	I	2.2	...
Group	II	2.8
Group	III	1.9
Group	IV	47.5	...
Group	V	28.5
Group	VI	28.4
Group	VII	160.0	...
Group	VIII	3.3	...

When the groups are thus separated, it can be seen that the gain in the average farm acreage is caused, in a large measure, by one section; and that section is the one least developed—the section where sheep and stock raising rather than tilling the soil are the chief agricultural occupations. The increase found in Group IV is chiefly due to the five comparatively young states, North and South Dakota, Kansas, Nebraska and Oklahoma. Missouri shows a decrease, as mentioned above; while Iowa reports an increase of only 0.2 acre. The decrease shown in Groups V and VI is due to the increase in the number of negro farmers. Excluding those states in which the agricultural industry is limited almost exclusively to the raising of cattle for slaughter and sheep, there was a decrease, not an increase, in the average size of farms in the United States during the period 1890-1900. This decrease is, however, very slight, and is due to the change mentioned in the South. We can find no tendency toward "large-scale" farming, or, as it is sometimes called, "bonanza" farming.

Fertilizers.—In the Northern States, at least, the kind of agriculture that is pursued in a given state, can be judged by the amount of fertilizer used. In Connecticut, Rhode Island, Massachusetts, Delaware, New Jersey and Maryland, the states in which market gardening has reached its highest development, the average cost of fertilizer per farm varied, in 1900, from \$35 in Massachusetts to \$62 in New Jersey. The states which are approaching this kind of agriculture, namely, New Hampshire, Vermont, Maine, New York and Pennsylvania, report an annual cost varying from \$12.55 in New Hampshire to \$21 in Pennsylvania. In Group III, the cost varies from \$2 in Wisconsin to \$10 in Ohio. In the Southern States, there is a great variation; the extremes are Arkansas \$1 per farm, and South Carolina \$29 per farm. In the remaining states fertilizer is an extremely small item, except in California, where the average cost is \$13 per farm.

The value of live stock in present day farm economy must not be overlooked. In the Eastern States the raising of live stock is carried on chiefly because of the value of manure as a restorer of fertility to the land. The same is, of course, true of dairy farming in many instances. The Industrial Commission

² The average size of farm in each group is obtained by adding the averages of the several states together and dividing by the number of states in the group.

Report cites the case of Jefferson County, Wis. In 1870, owing to exclusive grain farming, the fertility of the soil was exhausted; and the average yield of wheat was eight bushels per acre. Dairying was then introduced; the yield has increased until at the present time the average is twenty-one bushels per acre. The value of such by-products as straw, cornstalks, bran, etc., is fully utilized where live stock is raised on the farm. Commercial fertilizer is used as an additional aid.

All vegetable growths obtain their nourishment from two sources, the soil and the air. The air is practically inexhaustible; but the soil needs renewal. The elements taken from it must be returned to it in the shape of manure or fertilizer. The future of agriculture depends upon keeping unimpaired the fertility of the land. The farmer who sells his wheat, oats, corn and hay, and who keeps no live stock is simply destroying the fertility of his farm. The detrimental effects are sure to be felt sooner or later.

This country, by exporting wheat instead of flour, is losing a valuable feed product.³ The bran furnishes a cheap feed, thus decreasing the expense of feeding stock, and it also furnishes a valuable manure. A double gain to our farmers is lost if we export the raw product, wheat. A large proportion of the coarser products of a farm, as hay, straw, cornstalks, cornmeal, bran, oats, etc., should be returned to that farm in the form of manure. For like reasons, a country should not continually export raw materials. The country which does this is unnecessarily impoverishing itself; it is impairing its patrimony.

"Experience seems to have demonstrated that stock growing and stock feeding are essential to permanent prosperity in farming. The answer to the whole question of what to do to escape from exhausting the soil fertility is found in keeping more stock. Live stock has ceased to be a side issue in the organization of the farm, and it no longer serves its main purpose in supplying food for the farm family, but has become the keystone to the whole structure of development in the newer farm economy, which recognizes that the point of diminishing return to labor and capital can be indefinitely postponed only by utilizing live stock of such types and condition as will pay for themselves the year round, both by helping to maintain the fertility of the farm and by contributing to its cash income."⁴

Ownership of Farms.—In 1880, 74.5 per cent of the farms in the United States were operated by the owners or part owners; in 1890, 71.6 per cent, and in 1900, 64.7 per cent. There was a decrease of 2.9 per cent during the period 1880-1890; 6.9 per cent during 1890-1900. In other words, in 1900, three out of every eight farmers in the United States were tenants; or approximately 2,000,000 farms were owned by landlords. With the exception of one section, New England, there has been a marked increase in the percentage of farms operated by tenants. In 1900, Maine reported the highest percentage of owners, 95.3 per cent; and Mississippi the lowest percentage, 37.6 per cent. Only three states report a larger percentage of owners in 1900 than in 1890, namely, Maine, Vermont and New Hampshire. The average percentage for

³ See Review of Reviews, May, 1902. "The Fallacy of Exporting Wheat."

⁴ Industrial Commission Report. Vol. XIX, pp. 160-61.

New England, in 1900, was 88.4 per cent; in 1890, 88.7 per cent, and in 1880, 89.3 per cent. This group reports the highest percentage of owners, and also shows the least percentage of decrease during the last decade.

The states in the Cotton Belt show the lowest percentage of owners; the average in 1880 was 58 per cent; in 1890, 53.6 per cent, and in 1900, 45.7 per cent. Groups IV and VII show the greatest change in the ratio of owners to tenants. Group VII reported 81.2 per cent of its farms as operated by owners or part owners in 1900, 89.1 per cent in 1890, and 88.2 per cent in 1880. Group IV reported 74.2 per cent in 1900, and 82.3 per cent in 1890.

Do these statistics mean that we are approaching a condition in which a great majority of our farms are to be owned by absentee landlords, and operated by tenants who have little or no hope of eventually becoming farm owners?⁵ If so, it is a deplorable tendency and one worthy of consideration by every student of agricultural conditions, a race of tenant farmers means a deterioration of our farming population. This whole problem is bound up in the social, economic and educational problems of the rural community. Given good schools, good roads, efficient and reasonable steam and electric railroad service, good and wide-awake churches, farmers' institutes and clubs and the danger of a permanent tenant class can never become acute.

The extremely low percentage of owners in the South is due to the number of negro tenants. In Mississippi, 66.2 per cent of the white farmers are owners or part owners, while only 16.1 per cent of the negro farmers are owners or part owners. In South Carolina, the percentages are, respectively, 57.8 per cent and 22.2 per cent. In the United States, 746,717 negro farmers were reported in 1900; of this number, 462,675 were found in Group VI. Group VI reports 518,177 white farmers. There are more negro than white farmers in Mississippi, South Carolina and Louisiana.

When slavery was abolished, the wage laborer succeeded the slave laborer; but in recent years a system of renting small farms to negroes has come into extensive use. The negroes are rapidly becoming tenants, and in many cases owners. This is certainly indicative of an improvement in the condition of the negro; also, of a case in which an increase in tenantry is desirable.

Farm Machinery and Implements.—The total value of implements and machinery used by the farmers of the United States, was \$761,261,550 in 1900, \$494,247,467 in 1890, \$406,520,055 in 1880. The gain during the last decade was 54 per cent. A comparison of the cost of hand and machine labor has been made by the Department of Labor. The cost per acre for corn is estimated as \$3.625 for hand, \$1.513 for machine labor; for wheat, \$3.6333 and \$0.6892; for oats, \$3.7292 and \$1.0732. The reduction in labor time is correspondingly great.

What is the influence of farm machinery upon the farmer? It has enabled him to intensify agriculture. He is enabled to raise more products, to do more work, and to shorten his working day. The number of laborers per acre has not greatly decreased. The farm laborer is released from much

⁵ See Report of Industrial Commission. Vol. XIX, p. 96.

drudgery, and is allowed more leisure time. Steady work, if not too prolonged or exhausting, is a boon to mankind; but, if we are to enjoy our lives, if we are to be something more than mere machines for producing and consuming, leisure time must be allowed for social intercourse, for reading, for games and other forms of recreation. The farmer has been allowed little leisure in the past. If machinery gives him more leisure, he must learn how to properly utilize it. Hence, there is a great necessity now for good rural schools and churches, rural mail delivery and other social and economic improvements.

In some cases, the use of machinery has caused a very intermittent demand for farm labor. This may prove to be one of the factors which will prevent extreme specialization of crops.

The Population of Rural Communities.—Is the population of the rural districts in the older states increasing or decreasing? Our cities are still growing more rapidly than the remainder of the country; but the rate of increase is slowing up more rapidly than that of the entire United States. For example, from 1880-90, our total population increased 24.9 per cent; from 1890-1900, 20.7 per cent. During the same periods, the cities now having a population of 25,000 or more, increased 49.5 per cent and 32.6 per cent respectively.

Four out of five counties in Rhode Island (the county in which Providence is located, is the one omitted) reported a population of 78,657 in 1880, 90,383 in 1890, and 99,773 in 1900. This indicated little gain, or perhaps a loss in the strictly rural population. Five out of eight counties in Connecticut reported a gain of 26,740 during the period 1870-1880; 11,180, 1880-1890; and 19,605, 1890-1900. The five counties chosen are those having the smallest population. This shows a tendency toward a larger rural population. Vermont, a state having no large cities, reported an increase in population of 1,735 during the period 1870-1880; 136, 1880-1890; 11,219, 1890-1900. This accords with Connecticut. The rural counties of New York show little change during the last decade.

Professor Cooley has made a study of twelve rural townships in Southern Michigan.⁶ In these townships, there was a decrease of 1,100 during the period 1880-1890, and 628 during the period 1890-1900. He reports similar results in a study of ten rural townships in New York and Connecticut. His conclusion is that there has been a gradual slowing up of the decrease in the rural population of these three states.

The population of the State of Ohio increased 485,229 during the last decade: but five out of eighty-eight counties reported an increase of 294,986. These five counties contained the cities of Cleveland, Cincinnati, Toledo, Columbus and Dayton. Of twenty counties having a population of less than 25,000 each, seven reported an increase in population and thirteen a decrease during the last decade. In the South there is a general increase in the population. In Mississippi, only four counties show a decrease in population since 1890; in Tennessee, eight, and in North Carolina, ten.

⁶ Publications of the Michigan Political Science Association. Vol. VI, p. 355.

These statistics only give force to the belief that the great discrepancy, between the rate of growth of our cities and of our rural districts, is not likely to be as great in the future as it has been in the past. New and powerful factors in rural life, the trolley lines, rural mail delivery, the telephone, better rural schools and better roads, may be expected to cause a backward flow from cities to the rural communities. The isolation of the farmer's life has been one of its worst features. "While one person," says one writer, "is drawn to a city by schools, churches, libraries, concerts and theaters, five are drawn by the excitement and stir and bustle of a city." The reduction in the average size of the family, and the increase of the foreign element have reduced somewhat the social activity of rural communities. The church is no longer the social center that it was formerly in rural communities.

The farmer's life in the past has been characterized in this fashion: "Perpetual toil in good weather all through the busy season, and perpetual loneliness in bad weather and most of the winter." Good roads are to be the solution of the question of "perpetual loneliness" during bad weather. The lot of the farmer's wife has been especially hard. She has been condemned to a life of hard work from early morning to night, day after day, and year after year. If a farmer leads an isolated life, the life which his wife leads is doubly isolated. Woman's domestic industry is one of the "belated industries." The march of modern invention and modern industry has to a large degree passed it by.

It may be urged that this isolation is no new thing, people have always lived more or less in isolation. The isolation of the pioneer was greater than that of any farmer of the present day. The real cause of the discontent lies in the contrast between the social advantages of the city and those of the rural communities. The cities have drained the rural districts on account of their economic and social opportunities. The competition of the grazing lands of the West, and of the cereal growing land situated in Mississippi Valley has caused the abandonment of many farms in the northeastern portion of our country. The increase in intensive methods in agriculture will aid in arresting a decrease in the rural population. The farmer of the near future will be able to obtain many of the advantages of the city without many of its disadvantages, its homelessness, its dirt, its noise and its overcrowding. The writer believes that the census of 1910 will show a relative decrease in the rate of growth of the cities and a relative increase in the growth of the rural population, as compared with the census reports for 1890 and 1900.

Summary.—The farmers of the United States have been and are still passing through a period of adjustment made necessary by the competition caused by cheapened and improved means of transportation. For example, in the New England States much of the land which was devoted to general agriculture has been allowed to lie fallow. Western grains have driven the New England farmer from the grain-producing industry; and not all the land is needed for the more intensive agriculture of the present. This accounts for the increase of the amount of "unimproved land" in this section of the United States. While this, like all other industrial and social changes, has been very hard and trying to many; in the end the whole people will be

benefited. Those products, which can be transported easily and readily over long distances, will be grown in the section or sections best adapted to raise the same. The raising of cattle for slaughter, of sheep, and of the cereals, has already been to some extent confined to certain sections. Market gardening, growing of small fruits, and the production of milk are carried on in proximity to large cities; it being more difficult, though by no means impracticable, to transport the products over long distances. There are, however, influences at work, of which we have already spoken, that may stop this tendency toward localization of certain agricultural industries. Such localization, if carried to an extreme, may actually cause a waste on account of the extra amount of labor and machinery needed to transport the product. The added cost of transportation might outweigh any economy gained in production.

Steam has caused a concentration of industry in the large cities. Our villages have declined in importance. The latter part of the nineteenth century has been characterized by feverish haste and unhealthy unrest in our cities, by idleness and lack of occupation in our villages. In the country districts farmers have worked their farms just as their fathers did; it is only in recent years that there has been an acceptance, in any appreciable degree, of the idea that science is of value to the farmer. A change may be expected in the near future, and this is to be hastened by the long distance transmission of electrical power and by the development of industries requiring a small amount of machinery and power. This is likely to cause a revival of village industry. The farmer will be benefited by the building up of a home market for his produce. When this occurs we may expect an era of more intensive agriculture, and of increased value of all kinds of farm property. The wide separation in location between manufacturing and agricultural industries is to be lessened. With this change will come not only an improvement in agricultural conditions, but also a betterment in the condition of the laboring class.

In conclusion, the part which education is to take must be briefly considered. "The remedy for urban congestion so far as rural population contributes thereto is partly educational and partly economic." "If the cities gave no better educational facilities to children than many country children have to put up with, families would desert such a city as they would a sinking ship."⁷ The last quotation undoubtedly states its case too forcibly; but a great need of the rural community is better educational and social advantages. "We are without doubt in this country just on the edge of a great popular movement for the improvement of the condition of rural life through the improvement of the rural schools. As one phase of the movement there will come the broadening of the instruction in the principles of agriculture, so that in addition to college courses we shall have secondary courses in the ordinary and special high schools and even some elementary instruction in the common schools."⁸ The city does not furnish an environment which is

⁷ Report of Industrial Commission. Vol. XIX, p. 122.

⁸ Popular Science Monthly. September, 1902. Vol. LXI, p. 477.

natural. The education of the young in cities must always lack an essential element. The training received by the farmer lad is one which gives him a great power of adaptability. The lack of such training in the cities is one of the causes for the growth of manual training in our schools. Scientific principles are to guide the successful farmer of the future. Our rural schools, from the primary grades to the agricultural college, must have in view the education of men and women for farm duties.

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